Erosion and Sediment Control for Inspectors Course

Participant Guide

Training provided by the Virginia Department of Environmental Quality
Office of Training Services
June 2014

Agenda

8:30 – 9:15	Module 1 – Course Overview
9:15 – 10:00	Module 2 – The Virginia Erosion and Sediment Control Law and Regulations for Inspectors
10:00 – 10:15	Break
10:15 – 12:00	Module 3 – Erosion and Sediment Control Practices
12:00 – 1:00	Lunch
1:00 – 2:15	Module 3 – Continued
2:15 – 2:30	Break
2:30 – 3:15	Module 4 – The Inspection Process
3:15 – 4:00	Extension of the Inspection Process - Trouble Shooting Exercise

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Course Goal

Provide participants with the knowledge and tools needed to successfully inspect projects for compliance with the regulatory requirements of the ESC Act and Regulations in order to ensure the general health, safety and welfare of the citizens of Virginia, as well as provide protection for state waters.

Participant expectations

- You may use the handouts for note taking during the training, as all the materials were prepared for your personal use.
- Be honest with yourself about your strengths and areas that you need to develop. You are responsible for your own learning.
- Ask what you need from your trainers and other group members.

Acronyms

BMP: Best Management Practice

CA: Composted amended soils

CBPA: Chesapeake Bay Preservation Area

CDA: Contributing drainage area

CFS: Cubic Feet per Second

CN: Curve number

CPv: Channel Protection Volume

CSN: Chesapeake Stormwater Network

CSO: Combined Sewer Overflow

CWA: Clean Water Act

CWP: Center for Watershed Protection

DEQ: Virginia Department of Environmental Quality

ED: Extended detention

EMC: Event Mean Concentration

EPA: United States Environmental Protection Agency

ESC: Erosion and Sediment Control

ESCL: Erosion and Sediment Control Law

ESD: Environmental Site Design

g/cc: Grams (weight) per Milliliter (volume)

GP or Construction GP: Construction General Permit

HSG: Hydrologic Soil Groups

HUC: Hydrologic Unit Code

I-D-F curves: Intensity-Duration-Frequency curves

LDA: Land Disturbing Activity

LID: Low Impact Development

MS4: Municipal Separate Stormwater Sewer System

NHRCS TR-55: Natural Resources Conservation Service Technical Release 55

NOAA: National Oceanic and Atmospheric Administration

NPDES: National Pollutant Discharge Elimination System

NPS: Non-Point Source

P: Phosphorus

P2 Plan: Pollution Prevention Plan

RR: Runoff Reduction

RRM: Runoff Reduction Method

SAV: Submerged Aquatic Vegetation

SWM: Stormwater Management

SWPPP: Stormwater Pollution Prevention Plan

Tc or **TOC:** Time of concentration

TMDL: Total Maximum Daily Load (a federal and state regulatory term which describes the maximum pollutant amount a body of water can receive while still meeting water quality standards)

Tv: Treatment Volume

VESCP: Virginia Erosion and Sediment Control Program

VRRM: Virginia Runoff Reduction Method

VSMA: Virginia Stormwater Management Act

VSMP: Virginia Stormwater Management Program

VPDES: Virginia Pollution Discharge Elimination System

Module 1: Course Overview

Module 1 Objectives

After completing this module, you will:

- Become refreshed of what was taught in the basic class , and
- Identify the training and certification requirements for erosion and sediment control inspector

Module 1 Content

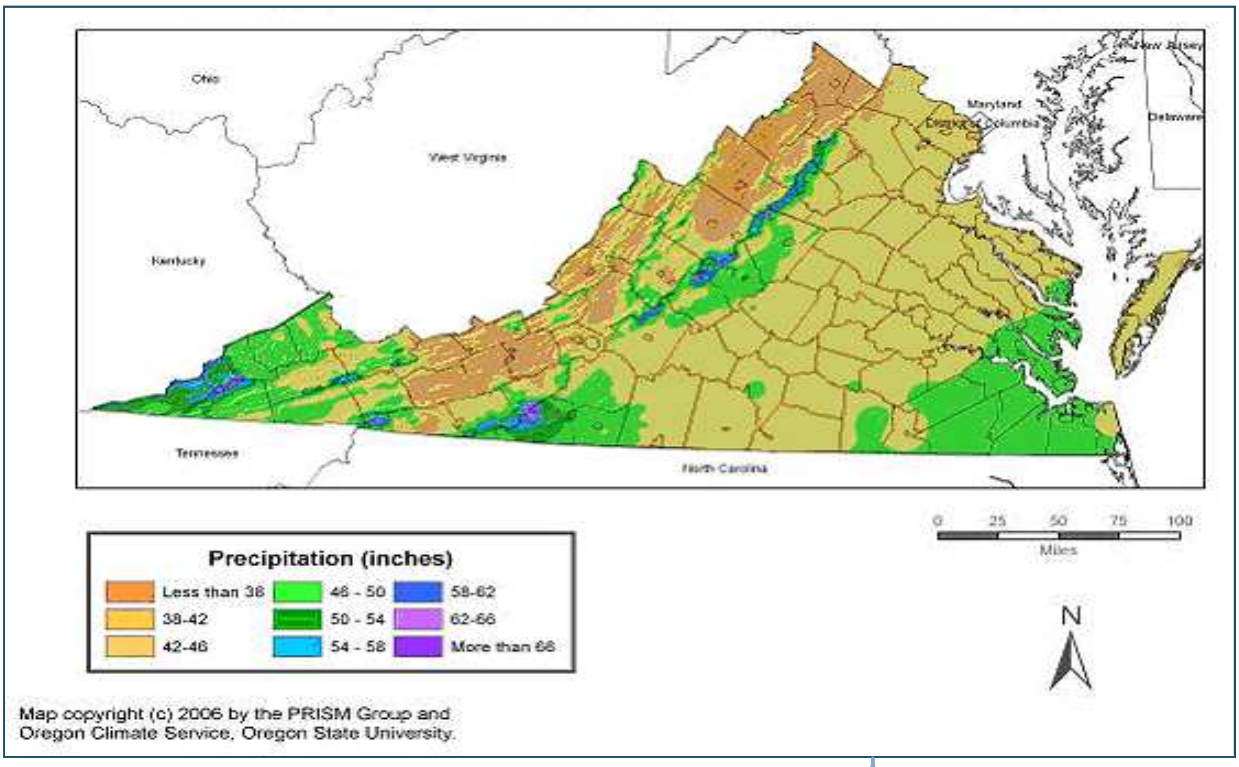
1a. Introduction

1b. The Erosion Process (a Summary)

1c. Training and Certification

1a. Introduction

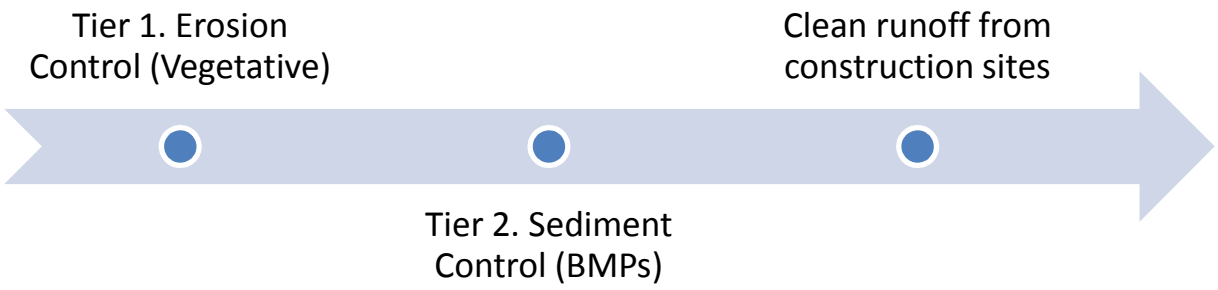
On average, Virginia receives between 40 and 50 inches of precipitation each year. While approximately 80% of the storms are small, with less than 1 inch of rainfall, the state may also experience torrential downpours and hurricanes. These large rainfall events cause runoff to carry sediment, fertilizers, pesticides, oil, heavy metals, bacteria, and other contaminants to surface waters, such as creeks, rivers, lakes and the Chesapeake Bay; thereby, causing adverse effects from increased pollution and sedimentation. In a Gallup Poll from 2008, the public listed clean water as the major environmental concern: 53% of the respondents were concerned about clean drinking water; 50% were concerned about the pollution of surface water such as rivers lakes and reservoirs; and 48% were concerned about the supply of drinking water.



Virginia's stormwater regulatory program addresses polluted stormwater runoff by requiring the use of best management practices (BMPs) during and after construction to minimize erosion and sedimentation and to properly manage runoff for both stormwater quantity and

The Virginia Erosion and Sediment Control Program addresses two items: Erosion Control and Sediment Control. Erosion is best controlled by having some form of ground cover that is either maintained on a site or established/restored after ground disturbance. Cover includes vegetation and various types of mulch. Sediment control is achieved with structural controls and is considered a second line of defense. Erosion control with vegetation and mulches is usually less costly then the construction, use, and maintenance of structural controls.

quality.



Some of the major impacts of erosion include:

- Loss of fertile topsoil,
- Turbidity in creeks and streams,
- In-stream erosion,
- Flooding,
- Sediment deposition in streams and on land,
- Loss of stream and Bay habitat and associated economic impacts,
- Cost of dredging and sediment removal, and
- Cost to clean-up water for use as drinking water.

The implementation of erosion and sediment control measures consistent with sound construction operations is one essential step in minimizing these impacts and concerns from runoff and erosion from land disturbance activities (LDA).

1b. The Erosion Process (a Summary)

Erosion can occur as a result of rain, wind, ice and gravity. Of these, non-agricultural erosion from rain and wind are regulated by the Erosion and Sediment Control Law and Regulations. Erosion is a natural process, but in many places it is increased by human land uses that disturb the soil.

Two Sources

- Geologic (30%)
- Accelerated (70%)

On a per acre basis, construction accounts for 10 times more sediment production than agriculture.

Five Stages

- Raindrop (90%)
- Sheet
- Rill
- Gully
- Channel

Four Contributing Factors

- Climate
- Soils
- Slope
- Ground cover

1c. Training and Certification

Inspection of the erosion and sediment control practices state-wide is a monumental task, and Virginia's legislature passed a law delegating the erosion and sediment control program to the localities.
The Erosion and Sediment Control Law (ESCL) requires:

- localities use certified inspector(s) and
- the State Water Control Board develop a certification program (including courses and exams), .

This training and certification program for inspectors targets three types of inspectors:

1. Inspectors employed by localities,
2. Inspectors employed by State agencies, and
3. Independent inspectors (usually employed by consulting firms and inspecting either under contract with State agencies or working independently for the project owner or land disturber).

This one-day inspector course is part the series to train local officials and the general public in administering a local erosion and sediment control program. The program also includes a two-day program administrator and a two-day plan reviewer section. Table 1-1 provides an overview of the course requirements for the four certification types.

Erosion and Sediment Control (ESC) Exam Eligibility Training
Table 1-1

Program Administrator	=	ESC 2-day Basic				
Inspector	=	ESC 2-day Basic	+	ESC 1-day Inspector		
Plan Reviewer	=	ESC 2-day Basic	+	ESC 2-day Plan Reviewer		
Combined Administrator	=	ESC 2-day Basic	+	ESC 1-day Inspector	+	ESC 2-day Plan Reviewer

This Inspector's Course provides information on the following subjects:

- The DEQ Certification Program,
- The Erosion Process,
- The Impacts of Erosion,
- The History of the Erosion and Sediment Control Program,
- The Current State Laws and Regulations Governing the Erosion and Sediment Control Program,
- A Review of the State Minimum Standards Including Minimum Standard 19,
- A Review of the Various Erosion and Sediment Control Measures(including Structural and Vegetative Controls) and
- Inspection and Enforcement

This introductory module provides a brief overview of some of the items which were covered in the basic course and relates this information back to the job as an inspector.

Module 2 provides an overview of the laws and regulations which guide or influence the inspector. It also discusses what to do in the event that violations are observed at a site and the development of a personal relationship between the land disturber and the inspector.

In Module 3, we examine the various erosion and sediment control measures from the standpoint of inspector.

Module 4 deals with how to prepare for and conduct an inspection.

Module 5 is a classroom exercise during which participants deal with site diagnostics and review examples of potential violations.